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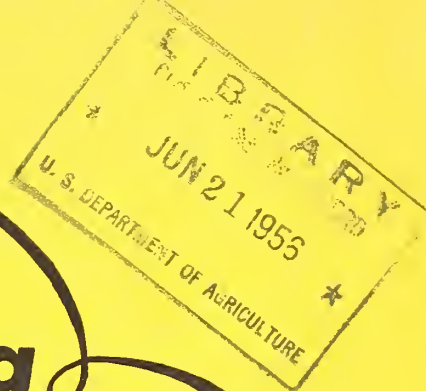
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**Bulk Milk Handling
in 1955**

BY JOSEPH M. COWDEN

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JOSEPH G. KNAPP, ADMINISTRATOR

The Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, financing, merchandising, product quality, costs, efficiency, and membership.

The Service publishes the results of such studies; confers and advises with officials of farmer cooperatives; and works with educational agencies, cooperatives, and others in the dissemination of information relating to cooperative principles and practices.

This study was conducted under authority of the Agricultural Marketing Act of 1946 (RMA, Title II).

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Summary

Bulk milk handling continued to expand throughout the United States, according to a mail survey conducted by the Farmer Cooperative Service. In March 1955, an estimated 17,700 producers were delivering bulk milk compared to 6,150 in May 1953.

The survey covered the entire country except California and part of Florida. Information came from 250 firms receiving milk from 307 plants.

More than one-fifth of the firms were farmer cooperatives. A good many other firms received bulk milk from cooperative producers on routes organized by bargaining associations which do not receive milk.

Bulk methods were still being adopted primarily by the larger producers. Average daily deliveries of bulk producers were approximately 80 percent greater than the average of producers delivering milk in cans to the same plants.

Nearly one-third of the plants received only bulk milk in March 1955. The remaining two-thirds were receiving milk both in cans and in bulk.

Practically all of the milk delivered by bulk trucks was qualified for distribution as fluid milk in the markets served by the receiving firms. Bulk milk was received mainly by fluid milk distributing plants or by receiving stations operated by such plants.

Small plants predominated in the group which had completed conversion and received only bulk milk. Bulk handling was not limited to the small plants, however. Nearly 60 percent of the partially con-

verted plants were comparatively large, receiving milk from 100 or more shippers each.

More than 28 percent of the patrons of all plants reporting bulk receipts were using bulk methods. They furnished 42 percent of the direct-from-the-farm milk supply.

Many of the partially converted plants were in the early stages of conversion. In 50 percent of the plants less than 20 percent of the patrons had converted. Approximately one-fourth of this group of plants expected to be fully converted by March 1956. Nearly 60 percent expected to complete conversion within 5 years.

Contract haulers owned and operated about two-thirds of the bulk tank trucks delivering milk to the reporting firms. Over 50 percent of the reporting firms, however, owned all or some of the bulk trucks serving their producers. There was a tendency for firms previously relying on contract haulers and direct deliveries by producers to own and operate bulk hauling equipment.

Over 75 percent of the reporting firms were utilizing 1 or 2 bulk trucks each for direct-from-the-farm milk procurement. Twelve percent were utilizing fleets of 5 or more bulk trucks each.

Approximately 80 percent of the truck tanks in use were mounted on straight frame trucks. They had an average capacity of 1,730 gallons. The semi-trailers in use averaged 2,730 gallons in capacity. Tanks ranging from 1,700 to 2,200 gallons in capacity accounted for a greater proportion of the total in

1955 than in 1953. Tanks smaller and larger than this range were relatively less common. The average capacity of all truck tanks in use was essentially unchanged since 1953.

The typical farm bulk cooling tank in use in most areas had a capacity of 200 to 300 gallons. The common range reported was from 100 to 600 gallons with numerous firms reporting some larger tanks on their patrons' farms.

Every-other-day (E.O.D.) service was common on bulk routes. More than half the reporting firms provided only E.O.D. service on all bulk routes. Less than one-fourth provided daily service to all bulk patrons. The remainder provided daily service to some producers and E.O.D. service to others.

Slightly more than one-third of the bulk trucks hauled more than one load of milk per day. The average for all trucks was 1.36 loads per day. This practice was followed most frequently in the Pacific Northwest where trucks averaged 1.89 loads per day.

Producers on bulk routes were being charged substantially lower average rates for hauling service than were charged for canhauling service. Producers using bulk service were large-volume, low-hauling cost producers.

The practice of charging all producers a flat rate for hauling was more common on bulk routes than on can routes. Eighteen firms were buying milk f.o.b. farm and thus made no direct charge for hauling service. Only 5 firms followed this practice on can routes.

Nearly half the plants receiving both can and bulk milk were paying direct price premiums for bulk milk. The most common premium rate was 10 cents per hundred pounds over the price of milk in cans.

The average firm receiving both can and bulk milk was returning direct monetary benefits of approximately 10 cents per hundredweight to bulk producers. Bulk milk premiums and reductions in hauling rates each accounted for about 50 percent of the total. Not all producers shared equally in these benefits, however. Nineteen firms reported that their producers received benefits from neither source. A few firms reported that these two items resulted in increases of over 25 cents per hundred pounds in returns to producers.

Approximately half of the reporting firms had, directly or indirectly, assisted producers financially in the conversion program. Financial assistance to contract haulers was somewhat less common.

Nearly three-fourths of the reporting firms indicated that financing or problems closely related to financing constituted the major difficulty encountered in converting to bulk procurement methods. Numerous other problems were reported by a few firms. One-fourth of the firms replied that they experienced "no major problems."

It may be concluded that the peak in expansion of bulk milk handling has not been reached. Managements of cooperatives in all fluid milk markets need to develop sound policies with respect to its adoption in their markets.

Bulk Milk Handling in 1955

by

Joseph M. Cowden
Dairy Branch
Marketing Division

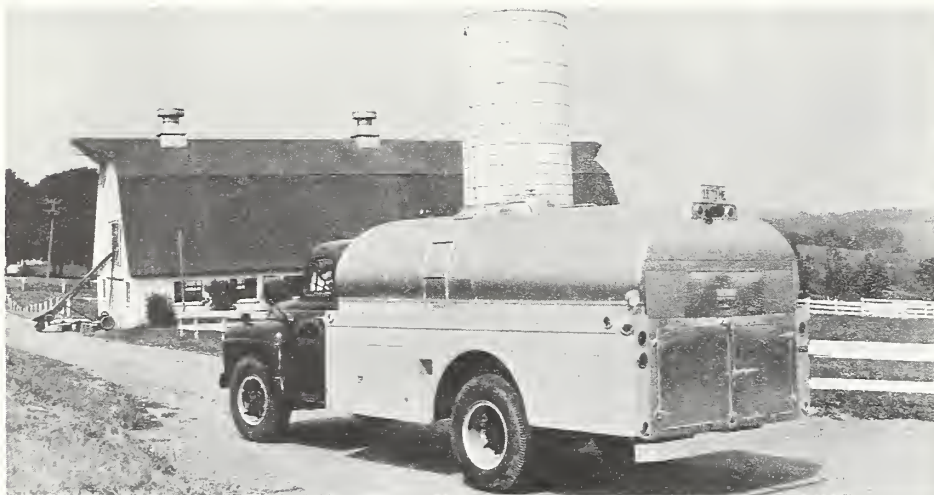
Data summarized in this report depicted the extent and nature of the adoption of bulk methods of farm-to-plant transportation of milk as of March 1955. The nationwide mail survey which was the source of information for this summary followed a similar survey conducted in May 1953. Results of the 1953 survey were summarized and discussed in considerable detail in FCS Circular 8, Progress in Farm-to-Plant Bulk Milk Handling issued in November 1954 by Farmer Cooperative Service.

The principal change occurring between the dates of the two surveys was in the numbers of plants and producers using bulk handling methods. Except for the numbers of plants, trucks and producers involved, the description and discussion of methods and practices presented in Circular 8 were largely applicable to this later survey. Accordingly, this report is limited to a presentation of statistical data with brief comments on important characteristics of the development.

Officials of the departments of agriculture and health in the various States were the principal source of information used in building up a mailing list of plants reported to be receiving bulk milk direct from farms. The list was expanded by information gathered from trade publications and agricultural colleges.

The survey covered the entire country except California and Florida. We made no attempt to obtain data from dairy firms in California due to the known extensive use of the bulk system in that State and the fact that production conditions prevailing there are not comparable with those in other Pacific Coast States or in other dairy production areas.

The California State Department of Agriculture supplied an estimate of the total number of producers and plants using bulk methods which is included in our estimated inventory. Florida plants receiving bulk milk from producers equipped with bulk cooling tanks on their farms also are included. Florida



All important dairy areas of the country now practice bulk milk handling to some extent. Within the last 2 years bulk milk tanks on farms have nearly tripled. The milk plant, the hauler, and the dairy farmer are all affected by the changes bulk milk handling brings.

plants receiving bulk milk direct from farms only in individual producer-owned tank trucks which were utilized both for transportation and as holding tanks on the farm were excluded except in the overall inventory. As a general rule, only exceptionally large producers used this method and their inclusion would have severely distorted the picture of more conventional farm tank operations.

We mailed questionnaires requesting information on extent and nature of bulk milk handling operations in March 1955 to 460 dairy plants and or firms. We received replies from 328 or slightly more than 71 percent. Thirty-six of the firms replying indicated that they had not started receiving bulk milk at the time of the survey. Eleven of the 36 indicated intention to begin operations during the current year, however. Data submitted by an additional 9 firms were too incomplete to permit tabulation.

We received a total of 250 usable schedules covering the bulk operations of 283 of the original correspondents. Many of the larger dairy firms received bulk milk at 2 or more plants. The 250 schedules tabulated covered the operations of 307 receiving plants.

Most of the schedules received and used in the tabulations were complete. A few of the correspondents, however, did not answer all questions. Discrepancies in the total numbers of firms or plants recorded in the various tables were due to incomplete replies unless otherwise indicated. Data on numbers of producers and volume of bulk milk handled were submitted and recorded on a plant basis. All data on operating methods and practices were recorded for individual firms except certain details of bulk truck operations tabulated on the basis of numbers of trucks involved.

Table 1. - *Estimated number of dairy plants receiving bulk milk direct from farms, and number of producers delivering bulk milk, March 1955*

State and region	Number of plants receiving bulk milk direct from farms			Number of bulk milk shippers		
	Surveyed ¹	Estimated ²	Total	Surveyed ¹	Estimated ³	Total
Maine	6	1	7	303	50	353
New Hampshire	1	-	1	74	-	74
Vermont	10	4	14	217	85	302
Massachusetts	11	1	12	337	40	377
Rhode Island	2	-	2	26	-	26
Connecticut	11	6	17	378	160	538
New England	41	12	53	1,335	335	1,670
New York	29	10	39	655	245	900
New Jersey	8	-	8	261	-	261
Pennsylvania	19	5	24	520	125	645
Middle Atlantic	⁴ 56	15	71	1,436	370	1,806
Delaware	1	1	2	14	15	29
Maryland	5	4	9	254	80	334
Virginia	1	5	6	15	50	65
West Virginia	-	1	1	-	10	10
North Carolina	1	2	3	70	50	120
South Carolina	2	-	2	112	-	112
Georgia	3	1	4	136	25	161
Florida	⁵ 22	9	32	⁵ 247	90	337
District of Columbia	5	1	6	502	80	582
South Atlantic	40	24	65	1,350	400	1,750
Ohio	4	10	14	204	110	314
Indiana	13	1	14	314	15	329
Illinois	30	8	38	961	260	1,221
Michigan	4	3	7	286	70	356
Wisconsin	32	16	48	944	345	1,289
East North Central	83	38	121	2,709	800	3,509
Minnesota	9	3	12	306	80	386
Iowa	5	4	9	174	245	419
Missouri	1	8	9	25	160	185
North Dakota	-	-	-	-	-	-
South Dakota	1	1	2	34	20	54
Nebraska	-	1	1	-	10	10
Kansas	4	2	6	88	40	128
West North Central	20	19	39	627	555	1,182

(Continued)

Expansion in Bulk Handling

Milk producers and milk receiving plants continued to adopt bulk handling practices at a rapid rate. Many plants which received no bulk milk at the time of our prior survey were receiving bulk milk direct from farms in March 1955. Continued conversion of producers supplying partially converted plants was also an important factor in the expansion.

Development by States -- March 1955

Reports received from 307 plants indicated that they received bulk milk direct from the farms of 10,715 producers in March 1955. The addition of estimates for California and for plants reported to be receiving bulk milk in other States but no replying to our questionnaire raised the total of producers using bulk methods to in excess of 17,700 at the time of the survey. A similar survey conducted in June 1953 indicated that 6,150 bulk tanks were in use on farms at that time. Thus the number of bulk tanks in use had

Table 1. - *Estimated number of dairy plants receiving bulk milk direct from farms, and number of producers delivering bulk milk, March 1955 - Continued*

State and region	Number of plants receiving bulk milk direct from farms			Number of bulk milk shippers		
	Surveyed ¹	Estimated ²	Total	Surveyed ¹	Estimated ³	Total
Kentucky	2	-	2	21	-	21
Tennessee	4	6	10	38	110	148
Alabama	-	-	-	-	-	-
Mississippi	1	1	2	16	15	31
Arkansas	-	1	1	-	15	15
Louisiana	-	1	1	-	5	5
Oklahoma	3	-	3	37	-	37
Texas	3	3	6	161	30	191
South Central	13	12	25	273	175	448
Montana	1	1	2	33	10	43
Idaho	2	3	5	87	40	127
Wyoming	2	1	3	28	15	43
Colorado	5	3	8	148	75	223
New Mexico	2	-	2	11	-	11
Arizona	10	2	12	304	60	364
Utah	5	2	7	212	50	262
Nevada	3	3	6	60	20	80
Mountain-	30	15	45	883	270	1,153
Washington	14	17	31	1,432	800	2,232
Oregon	10	5	15	670	100	770
California	-	163	163	-	3,200	3,200
Pacific	24	185	209	2,102	4,100	6,202
United States	307	320	628	10,715	7,005	17,720

¹Based on mail questionnaires returned to the Farmer Cooperative Service.

²Based on letters from State health or agricultural officials.

³Estimated by author on basis of information from State officials and industry publications.

⁴Includes 1 bargaining association serving 43 bulk shippers for which the number of receiving plants was not reported.

⁵Includes 10 plants and 97 producers receiving bulk milk by producer-owned bulk trucks many of which are used without bulk holding tanks on the farms.

⁶Includes 3 bargaining associations serving 972 bulk shippers for which the number of receiving plants was not reported.

nearly tripled in less than 2 years. Excluding California, where bulk handling developed early, the increase was approximately 350 percent between the dates of the two surveys.

Bulk handling had advanced furthest in the Pacific region in terms of numbers of producers and plants involved. The East North Central Region ranked second. The development was progressing in all geographic regions with the South Central States lagging in absolute numbers.

Identical Plants Compared - 1953-1955

Patronage and volume data for 64 identical receiving plants reporting in both 1953 and 1955 are summarized in table 2. The percentage of bulk patrons served and of bulk milk received by these

plants increased substantially in all geographic areas. In May 1953 the 64 plants received 25 percent of their milk in bulk trucks from 16 percent of their shippers. In March 1955 the comparable figures were 53 percent and 40 percent of volume and shippers, respectively.

Table 2 - Patronage and volume of milk received in cans and bulk of 64 identical plants by regions, May 1953 and March 1955

Item	Area															
	New England		Middle Atlantic		South Atlantic		East North Central		West North Central		Mountain		Pacific ¹		United States total	
	1953	1955	1953	1955	1953	1955	1953	1955	1953	1955	1953	1955	1953	1955	1953	1955
Number of plants included	9	9	10	10	8	8	15	15	4	4	8	8	10	10	64	64
<u>Number of patrons served</u>																
Can shippers	761	502	2,160	1,842	1,503	960	2,634	1,970	253	-	1,047	616	1,271	756	9,629	6,646
Bulk shippers	151	351	164	393	266	793	317	890	67	312	161	406	657	1,259	1,783	4,404
All shippers	912	853	2,324	2,235	1,769	1,753	2,951	2,860	320	312	1,208	1,022	1,928	2,015	11,412	11,050
Percent bulk	17	41	7	18	15	45	11	31	21	100	13	40	34	62	16	40
<u>Milk received per day</u> (Thousand pounds)																
From can shippers	364	193	1,146	996	1,238	846	1,100	819	107	-	529	243	745	307	5,229	3,404
From bulk shippers	206	321	135	341	348	951	292	714	66	232	210	428	509	830	1,766	3,817
From all shippers	570	514	1,281	1,337	1,586	1,797	1,392	1,533	173	232	739	671	1,254	1,137	6,995	7,221
Percent bulk	36	62	11	26	22	52	21	47	38	100	28	64	41	73	25	53
<u>Volume per patron per day</u> (Pounds)																
Can shippers	478	384	530	541	824	881	418	416	423	-	505	394	586	406	543	512
Bulk shippers	1,364	914	823	868	1,308	1,199	921	802	985	743	1,304	1,054	775	659	990	867
All shippers	625	602	551	598	897	1,025	472	536	541	743	612	656	650	564	613	653

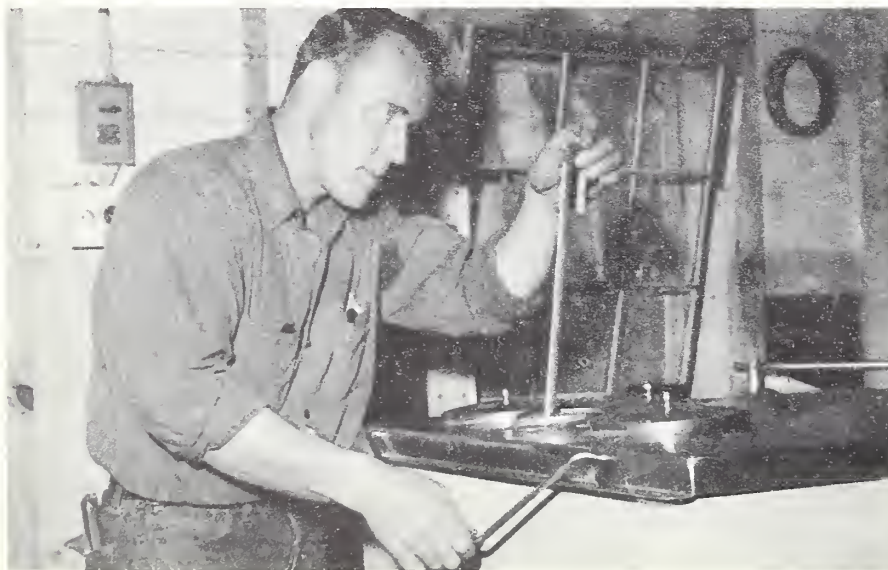
¹California excluded.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Dual Receiving Plants

Bulk milk procurement was used mostly by producers and plants supplying milk qualified for distribution as fluid milk in the markets served. Very little ungraded or manufacturing grade milk was delivered to the original receiving plants in bulk form. Reports came in from 172 partially converted plants which received milk in both bulk and cans. Only market grade milk was received by 148 of these plants. An additional 24 plants received some ungraded milk. Two of the 24 plants received only ungraded milk. Only 71 producers were delivering ungraded bulk milk to these 172 plants as compared to 5,783 producers delivering market milk by bulk truck.

Bulk shippers of market milk delivered an average of 846 pounds of milk per shipper per day as compared to 459 pounds per day delivered by can shippers. It was thus apparent that bulk procurement methods were still being adopted primarily by the larger producers. When data for individual plants were examined, however, several cases were noted in which there was little difference in the average daily delivery of market milk by bulk and can shippers. In these cases, and to a lesser extent in numerous other cases, producers with only typical or slightly above typical daily volume had installed bulk tanks. On a nationwide basis bulk shippers still had a much larger daily average volume than can shippers. The difference, however, was slightly less pronounced than in 1953.



By using a calibrated measuring rod, this tank truck operator is measuring the milk in this bulk tank.

Table 3. - Numbers of shippers, plant volume, average daily deliveries, and degree of conversion by plants receiving market milk in both bulk and cans, by regions, March 1955

Item	New England	Middle Atlantic	South Atlantic ¹	East North Central	West North Central	South Central	Mountain	Pacific ²	United States total
<i>Number</i>									
Firms reporting	12	22	11	43	10	8	14	13	133
Plants receiving only market milk	29	33	11	39	5	7	15	9	148
Plants receiving market and ungraded milk	-	-	1	10	3	1	1	6	22
Plants receiving only ungraded milk	-	-	-	-	2	-	-	-	2
Total plants	29	33	12	49	10	8	16	15	172
<u>Market milk</u>									
<u>In bulk:</u>									
Shippers	950	839	662	1,241	190	207	366	1,328	5,783
Receipts for month - million pounds	22.3	23.1	24.2	32.5	4.0	8.4	9.8	27.4	151.7
Average daily delivery per shipper - pounds	756	889	1,180	845	675	1,302	863	666	846
<u>In cans:</u>									
Shippers	2,373	8,995	1,270	6,954	1,222	759	1,823	1,032	24,428
Receipts for month - million pounds	25.2	123.9	32.5	96.9	18.0	15.2	22.7	13.1	347.5
Average daily delivery per shipper - pounds	343	444	825	450	476	645	403	410	459
<u>Ungraded milk</u>									
<u>In bulk:</u>									
Shippers	-	-	-	47	24	-	-	-	71
Receipts for month - million pounds	-	-	-	.70	.41	-	-	-	1.11
Average daily delivery per shipper - pounds	-	-	-	475	552	-	-	-	505
<u>In cans:</u>									
Shippers	-	-	105	2,526	1,412	228	155	1,639	6,065
Receipts for month - million pounds	-	-	.45	21.5	18.0	.72	.86	5.30	46.83
Average daily delivery per shipper - pounds	-	-	138	274	412	102	179	104	249
<u>Proportions of bulk and can deliveries of market milk</u>									
<i>Percent</i>									
Patrons delivering bulk milk	28.6	8.5	34.0	15.0	13.4	21.0	16.7	56.3	19.1
Patrons delivering can milk	71.4	91.5	66.0	85.0	86.6	79.0	83.3	43.7	80.9
Volume delivered in bulk	46.9	15.7	42.7	25.1	18.0	35.6	30.2	67.7	30.4
Volume delivered in cans	53.1	84.3	57.3	74.9	82.0	64.4	69.8	32.3	69.6

¹Florida excluded.

²California excluded.

³Includes 1 bargaining association not reporting number of receiving plants to which milk was delivered.

⁴Includes 2 bargaining associations not reporting number of receiving plants to which milk was delivered.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Plants Receiving All Market Milk in Bulk

Nearly one-third of the 307 plants reporting in the current survey were receiving all of their market grade milk by bulk trucks in March 1955. Six of

the 101 plants still received some ungraded milk in cans. Thus 95 plants out of 307 reporting received bulk milk only. In May 1953 only 8 plants out of 102 reporting relied entirely on bulk shippers for their direct from the farm supply.

Table 4. - *Numbers of producers, volume, and average daily deliveries of plants with 100 percent bulk receipts of market milk by regions, March 1955*

Item	New England	Middle Atlantic	South Atlantic ¹	East North Central	West North Central	South Central	Mountain	Pacific ²	United States total
<i>Number</i>									
<u>Market milk in bulk</u>									
Firms reporting 100 percent bulk plants reported	8 12	21 21	6 6	29 29	9 9	5 5	13 13	6 6	³ 97 ³ 101
Shippers Milk receipts for month - million pounds	385 9.5	533 12.3	441 12.5	1,337 30.4	388 8.9	66 1.3	458 16.3	341 6.8	³ 3,949 98.0
Average daily delivery per shipper - pounds	795	745	918	732	740	643	1,148	643	801
<u>Ungraded milk in cans</u>									
Above plants reporting Shippers Receipts for month - million pounds	- - -	- - -	- - -	1 750 5.3	⁴ 1 ⁴ 230 1.9	- - -	1 75 .2	1 250 .5	4 1,305 7.9
Average daily delivery per shipper - pounds	-	-	-	227	261	-	85	68	195

¹Florida excluded.

²California excluded.

³Volume was not reported for 4 additional plants serving 107 bulk shippers.

⁴Two more of the 9 plants receive ungraded milk in cans but did not report volume or number of ungraded patrons served.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Characteristics of Reporting Firms

Firms of various types including cooperatives, partnerships, individuals, and proprietary corporations had converted or were converting to bulk procurement methods. Milk distribution was the most common operating function of the reporting firms. In the group completely converted to bulk receiving methods, small plants predominated. Many larger plants, however, were included in the partially converted group.

Organizational Structure

Over 20 percent of the reporting firms were farmer cooperatives; 20 percent were owned by partnerships

or individuals. The remainder were proprietary corporations. The proportionate interest and participation of cooperatives in this development were greater than those indicated by the figures. In most areas reports were received from the milk receiving plants and not from bargaining associations, in order to avoid duplicate reporting. Many of the bargaining associations, which do not receive milk at association-operated plants, were responsible for the organization and direction of milk procurement from their members. Thus an undetermined but significant proportion of the proprietary firms were receiving bulk milk from cooperative producers on routes organized under the direction of the cooperatives.

Table 5. - Reporting firms classified according to type of organization, number of bulk patrons served and number of plants receiving bulk milk by regions, March 1955

Region	Individual proprietorships			Partnerships			Proprietary corporations			Cooperatives			Totals		
	Firms	Plants	Bulk patrons	Firms	Plants	Bulk patrons	Firms	Plants	Bulk patrons	Firms	Plants	Bulk patrons	Firms	Plants	Bulk patrons
<i>Number</i>															
New England	2	2	9	1	1	33	15	38	1,293	-	-	-	18	41	1,335
Middle Atlantic	4	4	59	6	6	105	24	28	866	11	18	406	45	56	1,436
South Atlantic	-	-	-	3	3	104	28	34	1,194	3	3	52	34	40	1,350
East North Central	11	11	203	7	7	110	38	44	1,783	15	21	613	71	83	2,709
West North Central	1	1	8	1	1	25	6	6	215	12	12	379	20	20	627
South Central	1	1	2	5	5	72	6	6	168	1	1	31	13	13	273
Mountain	3	3	32	3	3	61	19	21	705	3	3	85	28	30	883
Pacific - Washington and Oregon ²	<u>1</u>	<u>1</u>	<u>53</u>	<u>4</u>	<u>4</u>	<u>250</u>	<u>4</u>	<u>5</u>	<u>134</u>	<u>12</u>	<u>14</u>	<u>1,665</u>	<u>21</u>	<u>24</u>	<u>2,102</u>
United States	23	23	366	30	30	760	140	182	6,358	157	72	3,231	3250	307	10,715

¹Four bargaining associations included in this total did not report the number of plants receiving their bulk milk.

²California excluded.

³Two firms operated bulk plants in each of two regions. Net number of firms reporting 248.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Operating Functions of Plants

Distributing fluid milk was the principal operating function of two-thirds of the plants reporting the receipt of bulk milk direct from the farm in March 1955. An additional 48 plants - 16 percent of the total - functioned primarily as receiving stations for

fluid milk distributing firms. The remaining 51 plants were classified either as processing or diversified operations. Bulk milk was utilized in the latter group of plants - with the exception of 3 plants receiving ungraded bulk milk for processing - for distribution in the fluid market as a sideline to their primary manufacturing operations.

Table 6. - *Plants receiving bulk milk classified by principal operating function and number of producers served, by regions, March 1955*

Region	Principal function of receiving plant								Bargaining associations ²		Total	
	Fluid distribution		Receiving station		Processing		Diversified operations ¹					
	Plants	Ship-pers	Plants	Ship-pers	Plants	Ship-pers	Plants	Ship-pers	Associ-ations	Ship-pers	Plants	Ship-pers
New England	25	782	12	343	-	-	4	210	-	-	41	1,335
Middle Atlantic	40	1,003	7	176	1	9	7	205	1	43	56	1,436
South Atlantic	35	1,053	2	191	2	86	1	20	-	-	40	1,350
East North Central	46	1,658	21	650	8	252	8	149	-	-	83	2,709
West North Central	10	487	1	5	8	127	1	8	-	-	20	627
South Central	12	242	1	31	-	-	-	-	-	-	13	273
Mountain	25	719	2	67	1	2	2	95	-	-	30	883
Pacific - Washington and Oregon ³	11	311	2	282	3	42	5	495	3	972	24	2,102
United States	204	6,255	48	1,745	23	518	28	1,182	4	1,015	307	10,715

¹Handling milk ultimately consumed in fluid form as well as producing manufactured dairy products.

²These associations did not report the number or type of receiving plants to which their members' milk was delivered.

³California excluded.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Table 7. - *Plants receiving all or part of market milk in bulk classified by number of market milk producers served, March 1955*

Number of market milk producers served	Plants receiving all market milk in bulk		Plants receiving market milk in bulk and in cans		All plants	
	Number of plants	Percent of total	Number of plants	Percent of total	Number of plants	Percent of total
Under 25	58	55.2	12	7.1	70	25.6
25 - 49	24	22.9	24	14.3	48	17.6
50 - 74	7	6.6	18	10.7	25	9.1
75 - 99	6	5.7	16	9.5	22	8.1
100 - 199	9	8.6	46	27.4	55	20.1
200 - 299	1	1.0	24	14.3	25	9.2
300 - 399	-	-	18	10.7	18	6.6
400 - 499	-	-	4	2.4	4	1.5
500 and over	-	-	6	3.6	6	2.2
Total	105	100.0	168	100.0	273	100.0

Number of Producers Served

When plants receiving bulk market milk direct from the farm are classified according to the total number of producers served, as in table 7, it is apparent that small plants predominated in the group which had completed conversion to bulk receiving methods. More than 55 percent of the fully converted plants received milk from less than 25 producers each. An additional 23 percent received milk from 25 to 49 producers, and less than 10 percent served 100 or more producers each.

Although adopting bulk methods was easier for the smaller plants, the development was by no means limited to such plants. Many larger plants were in the process of converting. More than 58 percent of the partially converted plants were servicing 100 or more shippers each in March 1955. Less than 22 percent of such plants were receiving milk from less than 50 producers each.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Table 8. - *Plants receiving all or part of market milk in bulk, classified by number of bulk market milk producers served, March 1955*

Number of bulk producers served	All market milk received in bulk		Market milk received in bulk and in cans		All plants	
	Number of plants	Percent of plants	Number of plants	Percent of plants	Number of plants	Percent of plants
Less than 5	6	5.7	15	8.9	21	7.7
5 - 9	9	8.6	26	15.5	35	12.8
10 - 14	16	15.2	22	13.1	38	13.9
15 - 19	10	9.5	23	13.7	33	12.1
20 - 24	17	16.2	10	5.9	27	9.9
25 - 49	24	22.9	43	25.6	67	24.6
50 - 74	7	6.6	13	7.7	20	7.3
75 - 99	6	5.7	9	5.4	15	5.5
100 - 199	9	8.6	6	3.6	15	5.5
200 and over	1	1.0	1	.6	2	.7
Total	105	100.0	168	100.0	273	100.0

Number of Bulk Producers Served

Table 8 classifies plants receiving market milk according to the number of bulk patrons served. The limited nature of the bulk receiving operations of many of the partially converted plants was indicated by these data. Only 7 of the 168 plants in the process of conversion served 100 or more bulk producers each at the time of the survey. More than half of the partially converted plants obtained bulk milk from less than 20 producers each. When both fully and partially converted plants were considered, approximately 6 percent served 100 or more bulk producers and 46 percent served less than 20 bulk producers each.

Extent of Conversion

The extent of conversion varied greatly between regions and between plants within the various regions. Conversion to bulk methods had progressed furthest in the Pacific States but was taking place to some extent in all geographic regions at the time of the 1955 survey. Essentially all reporting firms expected an increasing proportion of bulk receipts in their plants. Many firms, however, were not anticipating complete conversion within a 5 year period.

In all Plants Reporting

Conversion to bulk procurement methods was further advanced in the Pacific northwest region than

in other areas. Plants reporting from Washington and Oregon were receiving 72 percent of their total milk supplies by bulk truck from 62 percent of their patrons in March 1955. The degree of conversion by reporting plants in the Middle Atlantic region was noticeably lower than in other regions although the number of plants reporting bulk receipts was higher than in all other regions except the East North Central States.

More than 28 percent of the patrons of all reporting plants were using bulk methods at the time of the survey. They furnished nearly 42 percent of the direct-from-the-farm supply of the reporting plants.

Table 9. - Degree of conversion of market milk to bulk handling by reporting plants, March 1955

Region	Number plants reporting	Patrons served		Volume received		Proportion bulk	
		Bulk	Total	Bulk	Total	Patrons	Volume
		(Number)		(Million pounds)		(Percent)	
New England	41	1,335	3,708	31.8	57.0	36.0	55.8
Middle Atlantic	54	1,372	10,367	35.4	159.3	13.2	22.2
South Atlantic	18	1,103	2,373	36.7	69.2	46.5	53.0
East North Central	78	2,578	9,532	62.9	159.8	27.0	39.4
West North Central	19	578	1,800	12.9	30.9	32.1	41.7
South Central	13	273	1,032	9.7	24.9	26.5	39.0
Mountain	29	824	2,647	26.1	48.8	31.1	53.5
Pacific	21	1,669	2,701	34.2	47.3	61.8	72.3
United States Total ¹	² 273	9,732	34,160	249.7	597.2	28.5	41.8

¹Excluding California and Florida.

²12 additional plants did not report volume.

Source: Based on mail questionnaires returned to Farmer Cooperative Service.

Partially Converted Plants

In March 1955 many of the partially converted plants were in the early stages of conversion. Fifty percent of these plants reported that less than 20 percent of their patrons had installed bulk tanks.

In 36 percent of the plants, less than 20 percent of the milk was received in bulk form. At the other end of the scale, 17 percent of the plants reported 60 percent or more of their patrons converted to bulk methods. Twenty-four percent of the plants received in excess of 60 percent of their direct-from-the-farm milk supplies by bulk truck.

Table 10. - *Plants receiving market milk direct from farms, in bulk and in cans classified according to percentage of patrons and milk volume converted to bulk, by regions, March 1955*

Degree of conversion, March 1955	Region																	
	New England		Middle Atlantic		South Atlantic		East North Central		West North Central		South Central		Mountain		Pacific ²		United States	
	Plants		Plants		Plants		Plants		Plants		Plants		Plants		Plants		Plants	
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
Percent of market milk patrons converted																		
Under 20	7	24.2	19	73.1	3	25.0	32	59.3	6	75.0	5	62.5	9	52.9	3	21.4	84	50.0
20 - 39	10	34.5	2	7.7	4	33.3	9	16.7	1	12.5	-	-	2	11.8	2	14.4	30	17.9
40 - 59	4	13.8	3	11.6	3	25.0	6	11.0	1	12.5	1	12.5	3	17.6	4	28.6	25	14.9
60 - 79	3	10.3	1	3.8	1	8.3	4	7.4	-	-	2	25.0	1	5.9	2	14.4	14	8.3
80 - 99	5	17.2	1	3.8	1	8.3	3	5.6	-	-	-	-	2	11.8	3	21.4	15	8.9
Total	29	100.0	26	100.0	12	100.0	54	100.0	8	100.0	8	100.0	17	100.0	14	100.0	168	100.0
Percent of market milk delivered in bulk																		
Under 20	6	20.7	14	56.0	2	16.7	23	46.9	5	62.5	3	37.5	3	18.8	1	7.7	57	35.6
20 - 39	2	6.9	5	20.0	3	25.0	12	24.5	1	12.5	2	25.0	7	43.7	3	23.1	35	21.9
40 - 59	10	34.5	2	8.0	4	33.3	5	10.2	2	25.0	-	-	4	25.0	2	15.4	29	18.1
60 - 79	5	17.2	3	12.0	1	8.3	5	10.2	-	-	2	25.0	-	-	4	30.7	20	12.5
80 - 99	6	20.7	1	4.0	2	16.7	4	8.2	-	-	1	12.5	2	12.5	3	23.1	19	11.9
Total	29	100.0	25	100.0	12	100.0	49	100.0	8	100.0	8	100.0	16	100.0	13	100.0	3160	100.0

¹Percentage of plants in the region.

²California excluded.

³Volume not reported for 3 plants.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Size of Partially Converted Plants

A high degree of conversion was usually associated with small volume plants. Of 29 partially converted plants reporting more than 60 percent of their patrons using bulk methods in March 1955, only 4 were serving more than 100 producers and 21 were

serving less than 50 producers each. Only 6 of the 52 partially converted plants serving 200 or more producers each were as much as 40 percent converted at the time of the survey. None of the larger partially converted plants reported more than 60 percent of their patrons using bulk methods. A few large plants were completely converted, however. (See table 7.)

Table 11. - *Plants receiving market milk both in bulk and in cans classified by number of patrons served and percentage of patrons delivering bulk milk, March 1955*

Percent of patrons delivering bulk milk	Number of market milk producers served									Total
	Under 25	25 to 49	50 to 74	75 to 99	100 to 199	200 to 299	300 to 399	400 to 499	500 and over	
Number of plants										
1 - 19	1	4	6	8	26	17	14	3	5	84
20 - 39	-	2	5	4	12	4	2	1	-	30
40 - 59	-	8	3	4	4	3	2	-	1	25
60 - 79	6	3	2	-	3	-	-	-	-	14
80 - 99	5	7	2	-	1	-	-	-	-	15
	—	—	—	—	—	—	—	—	—	—
	12	24	18	16	46	24	18	4	6	168

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Future Conversions

Firms operating partially converted plants were asked to indicate their expectations about continued conversion to bulk methods, based on current trends and projected plans of operation for their plants. More than one-fourth of the firms replying indicated that they expected their plants to be entirely converted

at the end of 1 year. Nearly 58 percent expected to be receiving only bulk milk at the end of 5 years.

About 42 percent of the firms did not expect to be fully converted at the end of 5 years. This group undoubtedly included many firms which received bulk milk from a few producers for competitive reasons and not because they had embarked on a planned conversion program.

Table 12. - Degree of conversion by dairy firms receiving milk in bulk or in cans as reported March 1955, and estimated for specified future dates

Date and item	Percent of producers selling bulk milk						Total
	Under 20	20-39	40-59	60-79	80-99	100	
<u>As reported March 1955</u>							
Number of firms	65	21	18	14	15	-	133
Percent of firms	48.9	15.8	13.5	10.5	11.3	0	100
<u>As expected March 1956</u>							
Number of firms	26	27	20	13	13	34	133
Percent of firms	19.5	20.3	15.0	9.8	9.8	25.6	100
<u>As expected March 1960</u>							
Number of firms	6	13	13	9	15	77	133
Percent of firms	4.5	9.8	9.8	6.8	11.3	57.8	100

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Future Conversion Related to Size of Plant

Data in table 13 indicate clearly that firms serving large numbers of producers expected conversion to bulk methods of procurement to proceed less rapidly than did the smaller firms. Some large firms, however, were planning full scale conversions. One firm serving more than 500 producers expected to be fully converted by March 1956 and six other large firms intended to complete conversion at the end of 5 years. More than one-fourth of the smaller

firms receiving some bulk milk expected to be receiving some milk in cans at the end of a 5-year period.

In essentially all cases these firms expected the percentage of bulk milk received in their plants to increase substantially, however. It appears logical to assume that many of these firms which received some bulk milk as a convenience to their larger producers might find dual receiving operations impractical and expensive and convert more rapidly than they anticipated.

Table 13. - Relationship between the size of the reporting firm and the estimated rate of conversion to bulk procurement methods

Percentage of producers selling bulk milk	Number of producers served								Total number of firms
	Under 50	50 to 99	100 to 199	200 to 299	300 to 399	400 to 499	500 to 999	1,000 and over	
<i>Number of firms</i>									
<u>As reported March 1955</u>									
Less than 40	10	18	23	9	9	5	9	3	86
40 - 79	14	6	6	2	1	0	3	0	32
80 - 99	12	3	0	0	0	0	0	0	15
100	0	0	0	0	0	0	0	0	0
Total	36	27	29	11	10	5	12	3	133
<u>Estimated as of March 1956</u>									
Less than 40	5	9	12	7	6	4	7	3	53
40 - 79	6	8	9	3	3	1	3	0	33
80 - 99	5	3	2	1	1	0	1	0	13
100	20	7	6	0	0	0	1	0	34
Total	36	27	29	11	10	5	12	3	133
Percent of firms fully converted	56	26	21	0	0	0	8	0	26
<u>Estimated as of March 1960</u>									
Less than 40	2	4	2	4	2	1	3	1	19
40 - 79	3	3	5	2	3	3	2	1	22
80 - 99	5	4	1	1	1	1	2	0	15
100	26	16	21	4	4	0	5	1	77
Total	36	27	29	11	10	5	12	3	133
Percent of firms fully converted	72	59	72	36	40	0	42	33	58

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Procurement Equipment

Bulk trucks used for farm-to-market transportation of milk were usually owned by contract haulers or by the dairy firms receiving the milk. Numerous firms which previously relied on contract can haulers owned and operated bulk hauling equipment. Ownership of trucks and truck tanks by contract haulers was dominant, however. The typical truck tank in use had a much greater payload capacity than that of can trucks used in most areas.

Trucks Classified by Ownership

Two hundred and thirty-one firms reported that 604 bulk trucks were used to transport milk from

farms to their plants. Contract haulers owned and operated nearly two-thirds of these trucks. Dairy firms owned slightly over one-third. In a few cases individual producers owned trucks or the firm leased them from unidentified parties.

In most cases the contract hauler or dairy firm owning the truck also owned the tank with which the truck was equipped. A few firms, however, assisted the contract hauler by providing the truck tank. In some cases the contract hauler was subsidized to that extent. In other cases the tank was leased to the hauler. Approximately 6 percent of the bulk trucks owned by contract haulers were equipped with tanks owned by the dairy firm.

Table 14. - *Bulk milk trucks classified by ownership*

Region	Number firms reporting	Number vehicles reported	Number of bulk trucks owned by			Number of truck tanks owned by		
			Dairy	Contract hauler	Others	Dairy	Contract hauler	Others
New England	16	52	19	32	1	20	31	1
Middle Atlantic	44	98	29	68	1	29	68	1
South Atlantic	21	95	15	77	3	19	76	-
East North Central	69	160	41	117	2	50	108	2
West North Central	19	39	11	28	-	16	22	1
South Central	14	28	12	11	5	14	9	5
Mountain	27	62	27	24	11	28	23	11
Pacific	21	66	50	16	-	50	16	-
Total number	¹ 231	² 600	204	373	23	226	353	21
Percent of total number			34.0	62.2	3.8	37.7	58.8	3.5

¹Excludes California and 9 Florida plants served exclusively by individual producer owned bulk trucks.

²The 231 firms were using 4 additional tankers for which ownership was not reported.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Firms Classified by Extent of Truck Ownership

Approximately 52 percent of the reporting firms owned all or part of the bulk trucks serving their producers. The remaining 48 percent owned no tank

trucks. The percentage of bulk receiving firms owning the bulk hauling equipment had declined somewhat since our 1953 survey. At that time 62 out of 98 firms owned all or part of the bulk trucks delivering milk to their plants.

Table 15. - *Reporting firms classified by degree of ownership of farm bulk tank trucks, March 1955*

Region	Number of firms owning				Percentage of firms owning			
	All bulk trucks	Some bulk trucks	No bulk trucks	Total	All bulk trucks	Some bulk trucks	No bulk trucks	Total
New England	8	2	6	16	50.0	12.5	37.5	100
Middle Atlantic	21	-	23	44	47.7	-	52.3	100
South Atlantic	7	4	10	21	33.3	19.0	47.6	100
East North Central	27	2	40	69	39.1	2.9	58.0	100
West North Central	7	1	11	19	36.8	5.3	57.9	100
South Central	7	2	5	14	50.0	14.3	35.7	100
Mountain	16	1	10	27	59.3	3.7	37.0	100
Pacific	14	2	5	21	66.7	9.5	23.8	100
United States Total ¹	107	14	110	231	46.3	6.1	47.6	100

¹California excluded.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Ownership of Can and Bulk Trucks Compared

There was a tendency for firms which previously relied entirely on contract haulers and direct delivery by producers to own and operate their own bulk hauling equipment at the time of this survey. Reports from 137 firms which received milk both in cans and

in bulk at the time of the 1955 survey indicated that 27 owned bulk trucks but no can trucks. Only 5 firms owned can trucks but no bulk trucks. An additional 27 firms owned both bulk and can trucks and the remaining 78 firms owned neither type of equipment. A total of 54 firms owned some bulk trucks as compared to 32 which owned can hauling equipment.

Table 16. - *Firms using both bulk and can trucks classified by ownership of trucks, March 1955*

Region	Number of firms owning									
	Bulk trucks and				Can trucks but no bulk trucks		Neither bulk nor can trucks		Total firms reporting	
	Can trucks		No can trucks							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
New England	5	45.5	-	-	1	9.1	5	45.4	11	100
Middle Atlantic	1	4.8	2	9.5	2	9.5	16	76.2	21	100
South Atlantic	-	-	3	27.3	-	-	8	72.7	11	100
East North Central	9	20.0	8	17.8	1	2.2	27	60.0	45	100
West North Central	1	10.0	1	10.0	-	-	8	80.0	10	100
South Central	1	10.0	4	40.0	-	-	5	50.0	10	100
Mountain	3	21.4	4	28.6	1	7.1	6	42.9	14	100
Pacific ¹	7	46.7	5	33.3	-	-	3	20.0	15	100
	27	19.7	² 27	19.7	5	3.6	78	56.9	137	100

¹California excluded.

²Twenty-three of these firms own all the bulk trucks serving their shippers.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Firms Classified by Number of Bulk Trucks Used

Approximately 55 percent of the reporting firms were using only one bulk truck each for the direct-from-the-farm transportation of bulk milk. An additional 20 percent used only two trucks each.

These data again illustrated the fact that bulk procurement methods were currently being used mainly by small milk receivers or by larger firms in the early stages of conversion. Nevertheless, 29 firms or 12 percent were using fleets of 5 or more bulk trucks each.

Table 17. - *Reporting firms classified by number of tank trucks in farm-to-plant service, March 1955*

Region	Number of tank trucks in service								Total firms reporting
	1	2	3	4	5 or 6	7 or 8	9 or 10	Over 10	
Number of firms									
New England	9	5	1	-	-	-	-	1	16
Middle Atlantic	25	12	3	-	2	-	1	1	44
South Atlantic	12	3	3	-	1	-	-	4	23
East North Central	42	10	3	6	3	-	4	1	69
West North Central	12	4	1	1	1	1	-	-	20
South Central	9	2	1	-	1	1	-	-	14
Mountain	11	8	3	4	-	-	1	-	27
Pacific ¹	9	4	2	-	4	1	-	1	21
Total number of firms	129	48	17	11	12	3	6	8	234
Percent of firms	55.1	20.5	7.3	4.7	5.1	1.3	2.6	3.4	100

¹California excluded.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Trucks Classified by Type and Capacity

Approximately 4 out of 5 bulk truck tanks in use at the time of the survey were mounted on straight frame trucks. The remaining one-fifth, excluding 2 or 3 tanks on full trailers, were mounted on semi-trailers. The average straight frame vehicle had a capacity of 1,730 gallons while the trailer outfits averaged 2,730 gallons. Most of the tanks on the straight frame trucks fell within the 1,500 - 2,000 range. The 1,500 gallon tank was most common with

the 1,800 size running a close second. The common capacity range of the trailer outfits was from 2,500 to 3,500 gallons with the former dominating.

The use of straight frame trucks prevailed to a greater extent in New England and the three central regions than in the other regions. The average capacity of all bulk trucks in use in the three central areas was substantially less than the United States average. Physical and legal limitations associated with spring road conditions in these areas were probably the main factors accounting for this difference.



Here the milk hauler takes a sample of the milk to be delivered to the plant laboratory for testing.

Table 18. - Farm-to-plant bulk transport trucks serving reporting firms classified according to structural type and capacity, by regions, March 1955

Region and type	Capacity of trucks in gallons											Total number reported	Average capacity gallons ¹
	Less than 1,000	1,000 to 1,499	1,500 to 1,599	1,600 to 1,799	1,800 to 1,899	1,900 to 2,499	2,500 to 2,599	2,600 to 2,999	3,000 to 3,499	3,500 and over			
Number of trucks													
<u>New England</u>													
Straight-frame trucks	-	1	12	2	13	20	-	-	-	-	48	1,770	
Trailer-tank transports	-	-	-	-	-	-	-	1	3	-	4	3,100	
Total	-	1	12	2	13	20	-	1	3	-	52	1,870	
<u>Middle Atlantic</u>													
Straight-frame trucks	-	4	4	-	16	34	4	4	1	-	67	1,970	
Trailer-tank transports	-	-	-	-	-	1	-	4	19	7	31	3,100	
Total	-	4	4	-	16	35	4	8	20	7	98	2,330	
<u>South Atlantic</u>													
Straight-frame trucks	1	1	8	12	30	12	7	-	-	-	71	1,840	
Trailer-tank transports	-	-	-	1	1	2	13	2	3	3	25	2,660	
Total	1	1	8	13	31	14	20	2	3	3	96	2,050	
<u>East North Central</u>													
Straight-frame trucks	2	21	55	6	42	6	9	-	-	1	142	1,640	
Trailer-tank transports	-	-	-	-	-	1	1	-	-	2	4	3,110	
Total	2	21	55	6	42	7	10	-	-	3	146	1,680	
<u>West North Central</u>													
Straight-frame trucks	-	6	5	12	2	8	2	-	-	-	35	1,720	
Trailer-tank transports	-	-	-	-	-	-	1	1	-	-	2	2,620	
Total	-	6	5	12	2	8	3	1	-	-	37	1,770	
<u>South Central</u>													
Straight-frame trucks	3	2	9	2	2	1	-	-	-	-	19	1,420	
Trailer-tank transports	2	-	-	-	-	1	4	1	-	-	8	2,010	
Total	5	2	9	2	2	2	4	1	-	-	27	1,600	
<u>Mountain</u>													
Straight-frame trucks	4	1	10	3	6	-	0	2	1	-	27	1,570	
Trailer-tank transports	1	1	-	-	-	1	18	6	3	2	32	2,550	
Total	5	2	10	3	6	1	18	8	4	2	59	2,100	
<u>Pacific (Washington and Oregon)</u>													
Straight-frame trucks	-	1	27	13	-	4	6	-	-	-	51	1,690	
Trailer-tank transports	-	-	1	-	-	-	9	4	-	1	15	2,630	
Total	-	1	28	13	-	4	15	4	-	1	66	1,900	
<u>United States²</u>													
Straight-frame trucks	10	37	130	50	111	85	28	6	2	1	460	1,730	
Trailer-tank transports	3	1	1	1	1	6	46	19	28	15	121	2,730	
Total	13	38	131	51	112	91	74	25	30	16	581	³ 1,940	

¹Rounded to nearest 10 gallons.²California excluded.³The capacity of 23 additional tankers serving the reporting firms was not reported.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Truck Capacity Compared - 1953-1955

At the time of the 1953 survey, approximately 60 percent of the straight frame bulk trucks in use had a capacity of 1,500 gallons or less. There appears to have been a trend away from the dominance of these lighter trucks in the later survey. In March 1955 only 38 percent of the straight frame trucks fell in this size classification. Straight frame tanks in the 1,750-2,200 gallon range made up a greater

proportion of the total than in the earlier survey.

Changes in the percentage of trailer-tank transports of various sizes were relatively slight. The larger trailer-tank transports, however, comprised a somewhat smaller proportion of the total of all tankers in use in 1955. Somewhat larger straight-frame tankers but relatively fewer trailer transports resulted in less than a 20-gallon increase in the average capacity of all tankers in use for direct-from-the-farm procurement of milk.

Table 19. - Comparison of type and capacity of farm-to-plant bulk tank trucks in service, May 1953 and March 1955

Straight frame trucks					Trailer-tank transports				
Tank capacity (gallons)	Number of trucks		Percent of total		Tank capacity (gallons)	Number of trucks		Percent of total	
	May 1953	March 1955	May 1953	March 1955		May 1953	March 1955	May 1953	March 1955
1,000 or less	14	10	10.2	2.2	2,000 or less	2	11	4.0	9.1
1,000 to 1,500	14	37	10.2	8.0	2,250	4	2	8.0	1.7
1,500	55	127	40.1	27.6	2,500	19	52	38.0	43.0
1,500 to 1,799	8	53	5.8	11.5	2,750	6	12	12.0	9.9
1,800	19	100	13.9	21.7	3,000	11	22	22.0	18.2
1,800 to 1,999	4	14	2.9	3.0	Over 3,000	8	22	16.0	18.2
2,000	12	67	8.8	14.6					
Over 2,000	11	52	8.0	11.3					
Total	¹ 137	460	100	100	Total	¹ 50	121	100	100

¹As reported in FCS Circular 8, "Progress in Farm-to-Plant Bulk Milk Handling," Appendix Table 13, pp. 47.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Capacity of Farm Cooling Tanks

Approximately 7 out of 10 firms reported that 200 or 300 gallons was the typical capacity of bulk farm cooling tanks installed by their patrons. Smaller tanks were typical in only a few cases. Farm tanks of 400 gallons or more were typical for about 22 percent of the reporting firms.

In a large majority of the cases reported, the

smallest tanks in use ranged from 100 to 200 gallons. A "bottom of the size range" smaller or larger than this range was reported by less than 11 percent of the reporting firms in this group. More than 65 percent of the firms reported an upper limit of 500 gallons or higher in the capacity of farm tanks in use in their respective areas. Larger farm tanks undoubtedly prevail in California and Florida where the average-sized herd greatly exceeds that in other areas.

Table 20. - Capacity ranges and typical rated capacities of farm bulk tanks on farms shipping to reporting firms, by regions, March 1955

Region	Number firms reporting	Range of farm tank capacity (gallons)												Number of firms reporting typical gallon capacity of:						
		Number of firms reporting largest tank at:						Number of firms reporting smallest tank at:												
		200	300	400	500	600	Over 600	Under 100	100	150	200	300	Over 300	150	200	300	400	500	600	Over 600
New England	17	-	1	3	4	5	2	1	5	3	4	2	-	1	5	6	2	1	-	2
Middle Atlantic	43	-	6	8	9	8	12	3	8	19	12	1	-	3	12	19	6	3	-	-
South Atlantic ¹	16	-	2	2	-	5	7	1	1	7	7	-	-	-	5	6	4	1	-	-
East North Central	72	5	10	26	10	14	7	3	28	21	16	3	1	9	39	19	4	-	1	-
West North Central	20	2	3	3	6	1	5	-	4	8	6	2	-	-	10	7	2	1	-	-
South Central	10	-	1	2	1	4	2	-	2	3	5	-	-	2	3	1	2	2	-	-
Mountain	26	-	-	-	6	7	13	1	2	6	15	1	1	-	4	11	6	3	1	1
Pacific ²	21	-	1	1	4	2	13	-	11	5	2	1	2	1	3	9	5	2	1	-
United States	³ 225	7	24	45	40	46	61	9	61	72	67	10	4	16	81	78	31	13	3	3

¹Excludes Florida.

²Excludes California.

³Two firms reported only typical capacity.

Route Operating Practices

Operating practices on many bulk routes differed substantially from those commonly followed on can routes. Every-other-day pickup service and more than one load of milk per truck a day were fairly common practices on bulk routes serving the reporting firms. Neither of these practices are common in the typical can route procurement system.

Frequency of Pickup Service by Firms

Approximately 55 percent of the reporting firms operated all of their bulk routes on an every-other-day pickup basis. An additional 22 percent either operated some routes on a daily basis and others on

an E.O.D. basis or operated routes on which some patrons received E.O.D. service. Less than one-fourth of the firms operated all of their routes on a daily pickup service basis.

Most of the firms indicated that they followed a consistent pickup pattern the year around. Twelve of the firms reporting E.O.D. route operations in March indicated that they shifted to a daily basis for 3 or 4 months during the flush production season. Eight plants operating daily routes in March stated that they shifted routes to an E.O.D. basis during 2 to 4 months of low production. Although shifting of routes appeared uncommon, shifting of patrons was probably more common. The percentages of daily and of E.O.D. shippers on the mixed routes may have changed somewhat seasonally.

Table 21. - *Reporting firms classified according to frequency of pickup service on bulk routes by regions, March 1955*

Region	Number of firms operating				Total number firms reporting
	All routes on E.O.D. service basis	All routes on daily service basis	Some routes E.O.D. others daily basis	Mixed routes ¹	
New England	8	2	2	4	16
Middle Atlantic	24	11	3	6	44
South Atlantic	5	4	8	6	23
East North Central	33	26	2	8	69
West North Central	17	1	2	-	20
South Central	7	3	2	2	14
Mountain	14	5	3	4	26
Pacific	20	1	-	-	21
Total number of firms	128	53	22	30	233
Percent of firms	54.9	22.8	9.4	12.9	100

¹These 30 firms were operating one or more routes on which some patrons received daily service while others received E.O.D. service. Some of them also operated other routes on a straight daily or E.O.D. service basis.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Frequency of Pickup Service by Trucks

Every-other-day pickup was the dominant practice in the Pacific Northwest, West North Central and New England States. In each of these areas 80 per-

cent or more of the bulk trucks were being operated on an E.O.D. service basis. In the important East North Central region the relatively high proportion of trucks providing daily service was due largely to the fact that regulations in the Chicago market area did not permit E.O.D. route operations.

Table 22. - *Frequency of milk collection service provided by bulk tankers serving reporting firms by regions, March 1955*

Region	Number of trucks providing				Percent of trucks providing		
	Daily service	E.O.D. service	Mixed service ¹	Total	Daily service	E.O.D. service	Mixed service ¹
New England	6	42	4	52	11.5	80.8	7.7
Middle Atlantic	31	48	19	98	31.6	49.0	19.4
South Atlantic	23	32	43	98	23.5	32.7	43.8
East North Central	74	66	14	154	48.0	42.9	9.1
West North Central	4	36	-	40	10.0	90.0	-
South Central	10	16	2	28	35.7	57.2	7.1
Mountain	11	34	14	59	18.6	57.6	23.7
Pacific - Washington and Oregon	1	65	-	66	1.5	98.5	-
United States ²	160	339	96	595	26.9	57.0	16.1

¹Some producers served on a daily basis, others on an E.O.D. basis.

²Excludes California.

³Item not reported for 9 additional trucks.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Utilization of Trucks

The average bulk truck hauled 1.36 loads of milk per day at the time of the survey. A few trucks serving routes in the primary stages of organization were hauling only 1 load every 2 days. Slightly more than one-third of the trucks reported were hauling more than 1 load per day. In the Pacific Northwest 77 percent of the trucks made more than 1 trip daily. In the important East North Central dairy States 41 percent of the trucks fell in this

classification.

Comparable data for can trucks were not available. In most areas 1 trip a day for such trucks has been common practice except during flush production periods. Probably the 1.36 trips per day average represented a substantial improvement in the degree of utilization of bulk trucks as compared to can trucks. The higher original cost of the bulk hauling equipment tends to encourage fuller utilization in order to hold down per mile and per hundredweight operating costs.

Table 23. - *Bulk tankers used by reporting firms classified according to number of loads hauled daily, by regions, March 1955*

Region	Loads hauled daily						Total number trucks reported	Average loads per truck per day	Percent of trucks hauling	
	One-half	One	One and one-half	Two	Two and one-half	Three or more			1 load or less	More than 1 load
Number of trucks										
New England	2	33	1	16	-	-	52	1.28	67	33
Middle Atlantic	6	71	2	12	2	-	93	1.11	83	17
South Atlantic	4	76	1	11	-	2	94	1.13	85	15
East North Central	4	82	7	50	3	1	147	1.39	59	41
West North Central	-	24	4	5	-	2	35	1.31	69	31
South Central	-	20	1	7	-	-	28	1.27	71	29
Mountain	-	29	2	15	-	6	52	1.53	56	44
Pacific	-	15	8	24	14	4	65	1.89	23	77
United States ¹	16	350	26	140	19	15	² 566	1.36	65	35

¹Excludes California.

²Item not reported for 38 additional trucks.

Source: Based on mailed questionnaires returned to the Farmer Cooperative Service.

Charges and Benefits to Producers

Producers delivering bulk milk to the reporting firms were paying substantially lower average hauling rates than producers shipping in cans. In addition to reduced hauling rates, bulk milk producers as a group benefited from premiums paid for bulk milk, that is, premiums over the price paid for the same grade of milk in cans. Not all bulk producers, however, shared in these direct monetary benefits. In

some cases firms receiving bulk milk had not reduced hauling rates and were not paying premiums for bulk milk.

Hauling Rates Charged

Data on ranges and averages of rates charged producers for hauling services on can, daily bulk and every-other-day bulk routes are summarized in tables 24, 25 and 26, respectively. These data



This bulk milk hauler is preparing to pump the milk from the farm tank into the bulk truck.

represent unweighted averages and ranges in the rates charged by the individual reporting firms.

On the basis of data in the tables, rates charged producers on the bulk routes were lower than those charged on the can routes. The difference in true costs may have been greater or less than the difference in rates. The fact that some firms paid subsidies to contract haulers in evidence of this fact. Subsidies on bulk routes averaging about 9 cents per hundredweight of milk were paid to contract haulers by 16 firms which paid no subsidies on can routes. Two firms paid the same subsidies to can and bulk haulers on contract routes. Three firms which subsidized can routes an average of 4.8 cents were paying no subsidies to bulk haulers.

Several differences were apparent in comparing rates on the can routes and on the bulk routes. Producers on bulk routes were being charged substantially lower average rates for hauling service than the rates for can hauling service. However, the differences in rates charged producers do not necessarily represent differences in the real costs of hauling milk by the two methods. In general, producers using bulk services were large, low-hauling-cost producers. Costs of hauling for such producers either in bulk or in cans were substantially less than on routes serving average or smaller producers. Since the can routes substantially represented a cross section of producers and the bulk routes a selection of producers, there were probably differences in length of route and in other factors which must be considered in comparing true costs.

The extent to which firms owning and operating their own trucks were subsidizing hauling could not be measured by data available. It will be noted, however, that average hauling rates charged producers

on company owned bulk routes, (tables 25 and 26) were lower in nearly all areas than those charged on contract routes. This may mean that the company owned routes were more efficiently organized than the contract routes. It may also mean that producers on the company owned routes were not being charged directly for the full costs of operation of such routes. Probably the latter is true in many cases.

Although there was considerable variation in rates charged for bulk hauling, the range in bulk rates was somewhat less than in the can hauling rates in most regions.

The practice of charging all producers a flat rate for hauling was more common in the case of bulk routes than on can routes. More than half of the firms reporting bulk hauling rates charged uniform rates to all bulk producers delivering to their plants. Only 30 percent of the firms reporting can hauling rates followed this practice.

Little difference was observed between daily and E.O.D. bulk hauling rates. Only 8 of the 38 firms reporting rates charged for both types of services indicated any differential between such rates. Other factors being equal, daily service undoubtedly cost more than E.O.D. service. The failure of rates reported to reflect such a difference was due, in part at least, to the fact that firms using both systems often gave daily service to very large producers and E.O.D. service to smaller producers. Under such circumstances little or no differential in rates may be logical.

Eighteen firms were buying bulk milk F.O.B. farm and thus making no direct charge for milk hauling services. Five of these firms also bought can milk F.O.B. the farm, 8 bought no can milk and 5 bought can milk F.O.B. plant.

Table 24. - Ranges in and averages of can hauling rates charged producers by dual operating firms, by regions, March 1955

Region and system of route operation	Number of firms reporting		Basic rate charged producers (cents per hundredweight)											
			High range ¹				Low range ²				Average range ³			
	Total	Charging flat rates	High	Low	Average	Median	High	Low	Average	Median	High	Low	Average	Median
<u>New England</u>														
Company routes	5	3	40	23	30.6	30.0	30	23	26.6	25.0	35	23	29.0	30.0
Contract routes	4	1	50	25	37.5	37.5	35	15	24.8	24.5	40	22	30.4	29.8
<u>Middle Atlantic</u>														
Company routes	3	1	50	20	35.7	37.0	40	20	30.0	30.0	45	20	32.8	33.5
Contract routes	15	3	70	20	34.9	31.0	35	10	20.9	20.0	40	20	26.7	25.0
<u>South Atlantic</u>														
Company routes	0	-	-	-	-	-	-	-	-	-	-	-	-	-
Contract routes	8	0	58	20	42.5	47.5	36	12	23.0	23.0	52	16	32.9	31.0
<u>East North Central</u>														
Company routes	9	5	45	10	27.3	25.0	45	10	25.2	22.0	45	10	25.8	22.0
Contract routes	34	10	50	7	27.9	24.0	45	7	21.5	20.0	45	7	24.9	20.3
<u>West North Central</u>														
Company routes	1	0	18	18	18.0	-	16	16	16.0	-	17	17	17.0	-
Contract routes	8	2	60	24	40.8	37.5	35	18	26.5	26.0	45	22	33.6	33.3
<u>South Central</u>														
Company routes	1	0	60	60	60.0	-	40	40	40.0	-	50	50	50.0	-
Contract routes	5	1	40	30	37.0	40.0	30	18	26.6	30.0	35	30	33.0	32.3
<u>Mountain</u>														
Company routes	4	0	100	36	76.5	85.0	50	22	33.2	31.5	60	36	47.3	46.5
Contract routes	9	2	69	30	49.2	50.0	53	20	30.4	27.0	54	30	39.0	35.0
<u>Pacific⁴</u>														
Company routes	6	3	40	32	36.1	35.0	35	25	31.0	31.0	35	32	33.7	33.5
Contract routes	7	3	40	20	32.8	33.5	40	20	26.6	25.0	40	20	29.9	30.0
Total	119	34												
Company routes	29	12												
Contract routes	90	22												

Each firm reported high, low, and average rate paid.

¹Represents range and averages of highest rates reported by individual firms.

²Represents range and averages of lowest rates reported by individual firms.

³Represents range and averages of average rates reported by individual firms.

⁴California excluded.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Table 25. - Ranges in, and averages of rates charged producers for daily bulk milk hauling service, by regions, March 1955

Region and system of route operation	Number of firms reporting		Basic rates charged producers (cents per hundredweight)											
			Top of range				Bottom of range				Average rate			
	Total	Charging flat rates	High	Low	Average	Median	High	Low	Average	Median	High	Low	Average	Median
<u>New England</u>														
Company routes	4	2	30	20	25.0	25.0	25	20	21.8	21.0	25	20	23.4	24.3
Contract routes	2	1	30	25	27.5	27.5	30	24	27.0	27.0	30	24.5	27.3	27.3
<u>Middle Atlantic</u>														
Company routes	5	4	29	15	20.8	20.0	25	15	19.8	20.0	27	15	20.4	20.0
Contract routes	7	1	39	18	27.6	30.0	25	09	19.6	20.0	27.5	16	23.2	25.0
<u>South Atlantic</u>														
Company routes	6	3	25	17	19.5	18.8	25	12	16.6	16.3	25	14.5	17.8	17.5
Contract routes	6	1	60	25	40.7	40.0	30	16	20.7	20.0	36	22	26.7	24.5
<u>East North Central</u>														
Company routes	11	9	20	5.0	14.5	18.0	20	5.0	11.5	10.0	20	5.0	14.0	14.0
Contract routes	20	9	35	7.5	21.1	20.0	25	7.5	18.3	18.5	30	7.5	19.5	20.0
<u>West North Central</u>														
Company routes	2	2	24	20	22.0	22.0	24	20	22.0	22.0	24	20.0	22.0	22.0
Contract routes	1	0	25	22	23.5	-	25	22	23.5	-	25	22	23.5	-
<u>South Central</u>														
Company routes	0	0	-	-	-	-	-	-	-	-	-	-	-	-
Contract routes	3	2	31	20	25.3	25.0	25	18.5	21.2	20.0	29.4	20.0	24.8	25.0
<u>Mountain</u>														
Company routes	4	2	88	16	35.5	19.0	50	10	23.5	17.0	69.0	12.5	28.9	17.0
Contract routes	4	4	30	17	21.7	19.8	30	17	21.7	19.8	30.0	17.0	21.7	19.8
<u>Pacific</u> ¹														
Company routes	1	0	25	25	25.0	-	20	20	20.0	-	24.0	24.0	24.0	-
Contract routes	0	0	-	-	-	-	-	-	-	-	-	-	-	-
<u>Total</u>														
Company routes	33	22												
Contract routes	43	18												
All firms	76	40												

¹California excluded.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Table 26. - Ranges in, and averages of rates charged producers for every-other-day bulk milk hauling service, by regions, March 1955

Region and system of route operation	Number of firms reporting		Basic rates charged producers (cents per hundredweight)											
			Top of range				Bottom of range				Average rate			
	Total	Flat rates	High	Low	Average	Median	High	Low	Average	Median	High	Low	Average	Median
<u>New England</u>														
Company routes	7	4	40	15	23.4	20.8	25	7.0	18.6	20.0	32	13	21.2	20.8
Contract routes	6	3	40	20	29.0	27.5	30	15	21.5	20.0	30	20	24.4	23.3
<u>Middle Atlantic</u>														
Company routes	16	7	40	10	22.2	20.0	35	5.0	17.7	15.0	37.5	10	20.0	15.8
Contract routes	15	7	45	18	28.2	27.0	45	15	24.5	25.0	45	16.5	26.5	25.0
<u>South Atlantic</u>														
Company routes	8	6	43	17.5	25.7	22.5	43	15	24.4	22.5	43	17.5	25.4	22.5
Contract routes	7	0	60	25.0	48.5	50.0	25	16	20.1	20.0	42	23.0	32.0	36.0
<u>East North Central</u>														
Company routes	16	11	44	10	21.4	20.0	29	10	18.9	20.0	37	10	20.2	20.0
Contract routes	23	14	40	5	26.3	30.0	35	5	23.3	25.0	35	5	24.5	25.0
<u>West North Central</u>														
Company routes	7	5	35	10	21.4	15.0	30	10	17.9	15.0	30	10	18.9	15.0
Contract routes	9	3	55	20	35.4	30.0	32	15	23.9	22.0	37	20	28.6	30.0
<u>South Central</u>														
Company routes	7	5	45	15	26.4	25.0	45	15	22.1	20.0	45	15	25.4	20.0
Contract routes	3	2	31	20	25.3	25.0	25	18.5	21.2	20.0	29.4	20	24.8	25.0
<u>Mountain</u>														
Company routes	12	8	55	15	25.5	19.5	30	10	18.5	18.0	35	12.5	21.6	19.5
Contract routes	10	4	75	17.5	38.7	36.5	53	17.5	27.3	24.0	54	17.5	31.2	30.0
<u>Pacific</u> ¹														
Company routes	11	5	40	15	27.6	25.0	35	10	21.3	20.0	35	15	25.0	25.0
Contract routes	6	2	45	15	25.6	24.3	28	15	19.7	18.3	35	15	22.8	21.8
<u>Total</u>														
Company routes	84	51												
Contract routes	79	35												
Total firms	163	86												

¹California excluded.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Bulk Milk Premiums

Nearly half of the plants receiving both can and bulk milk were paying direct price premiums for bulk milk over and above the price paid for milk of equal grade and quality delivered in cans. Approximately one-third of these plants paid premiums of 10 cents a hundredweight. Five cents and 15 cents were other common rates. Several plants were paying 25 cents a hundredweight. The practice of paying premiums was most common in the East North Central States and quite uncommon in the South Atlantic and Mountain regions.

Several firms indicated that premiums paid at the time of the survey were temporary in nature and might be discontinued at any time. In some cases premiums were guaranteed for specified periods or "until the producer's tank is paid for." Several firms not paying premiums indicated intentions to do so when justified by reductions in costs of receiving and or hauling milk. Many of the premiums being paid by these partially converted plants were in the nature of incentive payments. In other cases they reflected actual or anticipated reductions in the costs of milk procurement and receiving operations.

Table 27. - *Plants paying direct price premiums to bulk milk producers classified according to amount of such premiums, by regions, March 1955*¹

Region	Number of plants			Percent of plants paying premiums	Plants paying premiums per 100 pounds of milk of						
	Total reporting	Paying premiums	Not paying premiums		5 cents	7 cents	10 cents	12 cents	15 cents	20 cents	Over 20 cents
New England	28	21	7	75.0	20	1	-	-	-	-	-
Middle Atlantic	33	17	16	51.5	2	-	13	1	-	-	1
South Atlantic	18	21	17	5.6	-	-	-	-	-	-	-
East North Central	54	237	17	68.5	3	-	8	1	13	3	8
West North Central	10	4	6	40.0	1	-	2	-	1	-	-
South Central	8	2	6	25.0	-	-	1	-	1	-	-
Mountain	17	2	15	11.8	-	-	2	-	-	-	-
Pacific	17	7	10	41.2	-	-	5	1	-	1	-
United States ³	185	91	94	49.2	26	1	31	3	15	4	9

¹Includes only those plants buying milk in both bulk and cans.

²One plant in each of these two regions did not report amount of premium paid.

³California excluded.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Monetary Benefits

The average firm receiving both can and bulk milk was returning direct monetary benefits of approximately 10 cents per hundredweight to bulk producers. Reductions in bulk hauling rates as compared to rates paid by the bulk patrons prior to conversion accounted for approximately half of the direct monetary benefits. The balance was realized in the form of bulk milk premiums. At the time of our 1953 survey it was estimated that benefits to producers from these two sources averaged 12 cents per hundredweight.

Neither reduced rates nor premiums were common, however, to all of the 130 firms supplying sufficient data for this calculation. Nineteen of the firms reported that their producers received benefits from neither source. Producers delivering to 54 firms gained from reduced hauling rates but received

no premiums. Another 24 firms paid premiums but had made no reduction in hauling rates. Bulk patrons of the remaining 33 firms were receiving benefits from both sources.

Bulk patrons delivering to 79 fully converted firms benefited as a group, by a reduction in hauling rates. Nearly a third of these firms, however, reported no reduction in rates charged patrons. Reductions effected by the remainder ranged from 3 to 20 cents per hundredweight. The median reduction in rates for the entire group of 79 firms was 5 cents a hundredweight. Since can milk is not received at these plants, a current price premium comparison was not possible.

Data comparing current bulk milk prices with can milk prices prior to conversion was not obtained. Such a comparison would probably indicate further benefits to producers delivering to the fully converted plants.

Table 28. - *Estimated average monetary benefits from reductions in hauling charges and bulk milk premiums to bulk producers supplying dual-receiving firms,¹ by regions, March 1955*

Region	Number of firms reporting	Number of firms reporting											Average benefits	
		Monetary benefits to bulk producers from:				Total benefits of:								
		Reduced hauling rates only	Premiums only	Rate reductions and premiums	Neither source	None	1-5 cents	6-10 cents	11-15 cents	16-20 cents	21-25 cents	Over 25 cents	Unweighted mean cents	Median cents ²
New England	11	4	4	1	2	2	6	3	-	-	-	-	5.1	5.0
Middle Atlantic	20	8	5	5	2	2	3	8	4	2	1	-	9.9	10.0
South Atlantic	11	9	-	-	2	2	5	3	1	-	-	-	4.6	5.0
East North Central	45	10	12	16	7	7	6	8	7	4	7	6	13.8	13.0
West North Central	10	5	1	3	1	1	1	3	5	-	-	-	9.4	9.5
South Central	6	4	1	1	-	-	1	3	1	1	-	-	11.3	10.0
Mountain	13	8	-	2	3	3	1	5	2	1	1	-	9.1	10.0
Pacific	14	6	1	5	2	2	1	4	2	5	-	-	11.2	11.2
Total ³	130	54	24	33	19	19	24	37	22	13	9	6	10.7	10.0

¹Firms receiving milk in bulk and in cans.

²Cents per hundredweight of milk.

³Excludes 15 dual receiving firms due insufficient data reported. California also excluded.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Financial Assistance to Producers and Haulers

More than half the reporting firms indicated that they had financially assisted producers to help in the conversion program. Assistance to contract haulers was somewhat less common with 43 percent of the firms indicating such aid.

Statements on type of assistance given were in many cases indefinite and difficult to classify. Approximately one-fourth of the reporting firms assisted producers either by selling tanks on time contracts, making direct loans, or by co-signing notes to enable individuals to obtain funds from lending agencies. An additional 12 percent otherwise assisted in obtaining loan funds from banks and other agencies.

In most of these cases the dairy firm agreed to act as a collector for the lending agency by with-

holding specified payments from the producer's milk check. As indicated elsewhere many firms were paying premiums and reducing hauling rates charged producers. Such cases were not included as financial assistance in table 29 except in a few cases where such reductions in costs were guaranteed to producers to assist them in obtaining loans from third parties.

The most commonly reported type of assistance to contract haulers was the purchase of transportation equipment by the dairy firm, such equipment being leased to the contract hauler. In one or two cases truck tanks were being supplied temporarily by the dairy firm without cost to the hauler.

Many of the firms replying merely indicated that they gave financial assistance to producers or haulers without stating the nature or form of such assistance.

Table 29. - *Reporting firms classified by type of financial assistance provided producers and contract haulers, March 1955*

Item and type of financial assistance	Firms assisting			
	Producers		Contract haulers	
	Number of firms	Percent of firms	Number of firms	Percent of firms
Total firms reporting	232	100	112	100
No financial assistance given	102	44	64	57
Firms reporting assistance given	130	56	48	43
<u>Type of assistance by dairy firm:</u>				
Handled tanks-sold on time contract	26	11	3	3
Made direct loans	17	7	4	4
Underwrote loans or co-signed notes to obtain funds through lending agencies	15	6	5	4
Assisted otherwise in obtaining funds from lending agencies	27	12	1	1
Financed equipment purchases - method unspecified	9	4	8	7
Paid all or part of costs of installation and necessary improvements on farm yards, lanes, and milkhouses	7	3	-	-
Purchased equipment and leased-to-user	6	3	15	13
Obtained discounts by group bargaining with equipment suppliers	2	1	-	-
Gave advisory assistance only	3	1	2	2
Gave financial assistance - nature not specified	25	11	10	9
Total	¹ 137	-	48	-

¹Seven firms reported two types of assistance to producers.

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

Major Problems

Firms were asked to "list major problems encountered by your producers, your haulers, or your plants in adopting bulk procurement methods."

One-fourth of the firms replying to the question indicated that they experienced "no major problems." The percentage of these replies was much higher by the fully converted firms than by those still engaged in the process of conversion. Eighty-nine percent of the latter firms listed one or more problems.

Financial problems were considered of major proportions by 53 percent of the partially converted firms and by 40 percent of all firms reporting. Numerous firms indicated that the conversion process was retarded by the fact that producers and haulers believed the cost of necessary equipment was excessive. In other cases the difficulty was in obtaining loans on terms favorable to producers.

The second most frequently mentioned problem was "alterations of milk houses on farms." While such alterations may involve minor technical problems, it may be assumed that the cost pyramided on

top of the purchase price of the farm tank was the real problem.

The third problem, "small producers," was to a certain extent, but not entirely, a financial problem. Thus 72 percent of all firms reporting listed finances or other problems closely related to finances as being of prime importance.

Twenty firms listed the amount of "leg work" necessary to promote and organize the conversion program as being a problem of major proportions. Quality problems on the farm, lack of efficiency in the organization of bulk routes, improvement of farm yards and lanes, and inaccurate calibration and unreliable measurement of milk were other frequently mentioned problems. The reduced efficiency and necessary consolidation of remaining can routes, and inefficient dual receiving operations at plants, were problems of consequence to the partially converted plants. These latter two problems may be expected to intensify as the degree of conversion in the larger plants increases. Numerous other problems -- most important the conflicts and lack of uniformity in sanitary regulations -- were listed by several firms.

Table 30. - *Problems in adopting bulk procurement methods reported by firms receiving bulk milk, March 1955*

Item	Fully converted firms		Partially converted firms		All firms	
	Number of firms	Percent of firms	Number of firms	Percent of firms	Number of firms	Percent of firms
Total number of firms replying to question	85	100	104	100	189	100
Reporting "No major problems"	36	42	11	11	47	25
Reporting major problems	49	58	93	89	142	75
Problems reported most frequently:						
Financial	21	25	55	53	76	40
Alteration of milk houses on farms	12	14	25	24	37	20
Small producers	3	4	20	19	23	12
Leg work required to effectively promote the program	10	12	10	10	20	11
Quality problems on the farm	4	5	8	8	12	6
Lack of efficiency in organization of bulk routes	1	1	10	10	11	6
Improvement of yard and lanes	6	7	4	4	10	5
Inaccurate calibration and unreliable measurement of milk	5	6	5	5	10	5
Reduced efficiency and necessary consolidation of can routes	0	-	10	10	10	5
Inefficiency and lack of savings due dual receiving operations	0	-	10	10	10	5
Conflicts and lack of uniformity in sanitary regulations	0	-	9	9	9	5
Anti-bulk attitude of competing plants and haulers	4	5	2	2	6	3
Power supply problem on farms	4	5	2	2	6	3
Obtaining and training qualified haulers	2	2	4	4	6	3
Unloading and cleaning facilities for bulk trucks	0	-	4	4	4	2
Adjustment of hauling rates	2	2	2	2	4	2
Freezing in farm tank	2	2	1	1	3	2
Care of samples on truck	1	1	2	2	3	2
Confusion of producers by salesmen	1	1	1	1	2	1
Lack of uniformity in equipment	2	2	0	0	2	1
Required expansion of plant storage capacity	1	1	1	1	2	1
Breaking established hauler-producer relationships	0	0	2	2	2	1
Mixed loads - A and B Grade milk	0	0	2	2	2	1
Maintenance of time schedules on bulk routes	0	0	2	2	2	1
Other problems mentioned by only one firm	6	7	11	11	17	9
	87		202		289	

Source: Based on mail questionnaires returned to the Farmer Cooperative Service.

